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ABSTRACT

A rethinking of the major concepts held about the post-industrial society presents educators with the challenge of translating research insights into the praxis of everyday life to improve students' employability. Forecasters of an "information society" where Americans engage only in services and communications forget that an insufficient number of specialists exist to support such an exclusive industry. The American school system, in contrast to those of other nations, ignores the necessity of realistic options for those unable to handle the abstract tasks of the "formal operations" stage of intellectual development. Reports explaining declining academic achievement do not get at the problem's roots: the historic behavioristic ideology of schools. "Industrial democracy," the integration of the worker in the decision-making process, is one attempt to counteract pervasive negative attitudes about work. A foremost task of educators and scholars is to make leaders aware of trends in society and new insights into human nature. A first step is the establishment of local councils of education with community members. America competes with other nations, whether characterized by conventional industry or "high tech." Avoiding the waste of unskilled, unemployable young people lacking positive work attitudes requires the ability to match theories with practice. (CJH)

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Basics & Principles of Education in a "Post-Industrial" Era

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1. Preliminary remarks

With a complex topic like the one we are going to discuss, there cannot be a "linear" development of arguments unless we have a whole semester available, and the time for an on-going dialogue. We will take some "circular" glances on various aspects of the issue, hoping that it will challenge the listeners to pursue the topic further and try out some of the propositions.

The object of my paper is not to pre-scribe or analyze but to challenge, to re-think some of the concepts we have, or assume to have, about trends and developments in our society at this time.

We will first have to clarify some of the concepts and basic assumptions, then discuss their meaning and practical implications, and finally make some propositions what we, as educators and/or scholars may have to do or decide to do.

It may also be in place to qualify myself in front of my audience to gain some credibility. I cannot deal with this subject in merely "academic" terms, since I have seen too many of our young people leaving our schools -- with and without a graduating diploma -- who find themselves unable to cope with the reality of a so-called "post-industrial" society. My research which focuses on industrial education in America and in Europe and Japan, led me

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to the conviction that we have not sufficiently recognized the needs of an industrialized society and have not met the challenges of a developing "high-tech" or "post-industrial" era. This is partly due to a lack of translating research and scientific insights into the praxis of everyday life, partly also, however, it is the gullibility of some of our leaders toward ideologies and bandwagons. Too often, and too long have we allowed amateurs and quacks to tinker with our youth and the schools, and too many of us in the academic community have failed to counter-act them.

My concern is coming from many years of being a teacher -- on both sides of the Atlantic -- and from the experience with young people who are unemployable because they have not learned skills nor developed attitudes which industry and business demand.

I want to share this concern with you, hoping that some of these ideas will bear fruit, somewhere, sometime...

2. Are We Entering - or Are We Already in the "Post-Industrial Era"?

Daniel Bell's book The Coming of the Post-Industrial Society (1976) seems to be the first that discussed the concept of a new phase of industrialization which goes beyond all previous developments. His assessment of this trend is realistic, but we may have doubts whether we have secured the previous step before we make the next. Unlike any other nation in the history of Mankind, America has developed from a sporadically inhabited wilderness into the most complex and pluralistic urbanized society. In a rapid succession, this development went from agrarian to

high-tech. But it was not a consistent and continuous pace. Up to this day, we have "under-developed" areas with conditions that are similar to the ones two hundred years ago, and we have groups, like the Amish, who made the decision not to follow the trends toward industrialization and urbanization. It is this inconsistency that challenges educators and scholars to discuss and assess the validity of such perspectives as Daniel Bell's of the "post-industrial era".

There are reasons to doubt our readiness for this era since we see so many unresolved problems of the preceding and current era: On the political sector, American industry is about to free itself again from the control of government regulators; at the same time it adopts the principles of democracy -- sporadically, in this country, though the ideas of "industrial democracy" come largely from American thinkers -- and emerges as a partner. On the educational sector, the same trend toward a partnership can be observed, with the initiative from industry and business, and the realization that our schools have failed to develop a system of industrial and vocational education which would furnish enough of skilled manpower for an industrialized society. The trend toward the predominantly service-oriented industry, with the majority of the working population no longer producing goods, is a fact. But to predict that, in the future, we will only "process information", while the rest of the world will produce goods, may be on dubious grounds. We will always have to produce to meet the needs of a population. Even the machines used for processing information (computers, communications and

media equipment) must be made and maintained, repaired, improved. To leave this entirely to other nations is not only un-economic, but would create dependencies which can cost more than just money. The point is, that we will not leave the previous phases of industrialization behind, when we enter a new era or stage of development. It is also one of the principles of human development that only when a phase or stage has been successfully completed, will the next stage of development arise. Erikson's Theory of Personality, with its stages expressed in dialectic opposites (e.g. "industry vs. inferiority", a developmental task of childhood) can be applied analogously in our context: the achievements and problems of an era have to render a positive balance eventually, otherwise the next phase will not materialize. But each previous achievement will remain the foundation of the next one.

America as an industrialized and free nation still struggles with problems which belong to the first phases of industrialization: in industry and business, in education and human relations, and in politics. Approaching the 21st century, we still struggle with problems of the 19th century: social injustice, exploitation, lacking cooperation and pooling experience and resources, and gearing education to the needs of individuals and of society.

The limitations of time and of the framework of such a paper allow only for focus on one of these aspects: education. We should keep in mind though, that this is only one aspect of a most complex issue.

We take our point of departure from Daniel Bell's analysis of the factors leading to the "post-industrial" society, with the thesis that America is not yet ready for this development although it has already moved into this stage of development. The point is not to put on the brakes and wait until we have caught up, nor is it a pessimistic view, but the challenge to assess realistically the pre-requisites for a high-tech and post-industrial era, and to decide on measures that will provide a basis for such a development to be of lasting quality. Educators face such a problem quite often in children who have been pushed into situations for which they are not yet ready. It would not help to hold them back and wait until they achieved the level of readiness, although this might often be the best measure. Life goes on, and we have to operate on several levels at the same time, hoping that the lines converge sooner or later. The question whether or not we are already in the new era can only be answered when we clarify what the pre-requisites and main principles of such an era are.

3. The Central Role of THEORY in the Post-Industrial Era.

Daniel Bell points to the change in the character of knowledge which characterizes the "post-industrial era":

> "...the direction of change is the centrality of t h e o r e t i c a l knowledge - the primacy of theory over empiricism, and the codification of knowledge into abstract systems of symbols..." (p. 20)

This may sound revolutionary to many of us since we have been brought up with the pragmatism which almost became the hallmark

of American philosophy. However, the contention that theory precedes praxis has been as the very basis of all philosophies, both Western and Oriental. The Aristotelian model of ἐμπειρία (empeiria = "experience") emphasized the dialectic of πράξις and θεωρία (praxis and theoria) which were of equal quality and equally essential for human existence. In the Platonic tradition, however, the emphasis was more on "theoria", which originally means more than just "theory": Man's ability to consider all possible aspects of reality, and to have total view (like the Gods) not necessarily after the efforts of study and research (that would be the meaning of "praxis", which also connotes more than our English "practical") but instantly, intuitively, and affectively. It was mainly the American school of thought (example: Dewey's "pragmatism") which stepped out of the classic tradition and insisted on the primacy of praxis over theoria. Today, we are able to support the classical philosophic tenets by scientific insights: already in childhood, the activities of the mind are "theoretical", i.e. the right hemisphere of the brain with the function of "circular thought" (= getting the whole picture at once, affective domain, symbolic recognition) works first. Only in the course of intellectual development does "linear thinking" arise. We must not misunderstand this: of course, the child is first a "manipulator" before being a "thinker", but by manipulating things (playing), the child receives impressions, forms concepts which are wholistic. The child approaches reality neither systematically (one step after the other) nor logically, but "irrationally", with fantasy and feelings. This is exactly what theoria originally means. For us, the concept has become

something else: a conclusion at which we arrive after thinking and experimenting. But we may recall that contemporary science has turned around completely, at least since Einstein. His Theory of Relativity is based not on observation and study but on a "dream", on a pre-conceived view which, later on, was to be tested by experimentation. This is a return to the Anselmian axiom: "Fides quaerens intellectum" (Anselm of Canterbury: "Faith seeks intellectual support", 1109 AD). Although a theological axiom, it is valid for all intellectual activity. The child and the scientist, the worker and the educator always start with an idea (theoria), if not with the belief that the idea can be realized. Those men and women who brought us "high-technology" began with the "faith" that goods can be produced faster, better, cheaper, and that the machines which industry had developed so far, could be refined and perfected. Without the vision of what is possible, no one would have bothered to change anything.

In this phase of technological development, much more of Man's ability to "theorize" and to abstract, is challenged, since the concrete operations like the production of goods and the extraction of resources are carried out by machines, robots -- and by people who have not yet developed these intellectual skills. The prophets of a future "information society" who predict that America will only engage in services and communication industry, while the "rest of the world" will produce goods, forget that such a development would not only be dangerous and counter-productive, but also impossible. There are not enough individuals in our society to support such an exclusive industry. Developmental psychology (particulatly Jean Piaget with his Theory of Intellectual

Development) found that less than half of a population (any population!) reaches the level of "formal operations" in their intellectual development. The other half remains in the "concrete operations" stage. It is necessary to emphasize that this distinction between "formal" and "concrete" operations (simplified: "theoretical" and "practical" intelligence) is not a "higher/lower" but qualitative difference. The educational implications of this fact will be discussed later, in this paper. Here we need to see that with the progressive trend toward "abstraction" and the centrality of theory in the development of a "post-industrial" society, we can count only on part of our population. The contemporary high rate of unemployment and unemployability will stay when we do not provide for opportunities matching the capacity of those individuals who cannot handle abstract thinking.

The American school system does not consider these facts at all. In contrast to virtually all other nations in the world, we have no options on the secondary level for those who are not capable of handling "formal operations", and we have, against all insights in the nature of the learner and of learning, over-charged children from an early age with cognitive tasks for which they are developmentally not ready. On the other side, we fail to gear our schools and their curriculum to the needs of an industrialized and pluralistic society. Among all industrialized nations, the USA has not developed a system of vocational/industrial education providing industry with a sufficient number of skilled and motivated workers. Until about 25 years ago, we could afford to neglect training youth because most of the highly trained and motivated

manpower came from the Old World: a constant influx of new blood into the organism of industry. This has stopped as the immigration quota was drastically reduced, and while Europe's standards of living rose to levels comparable to ours. There were warnings from American educators way before World War II, and several attempts to establish vocational education. But the notion of vocational education being something inferior and mostly for the "dummies" who cannot make the college, prevailed. We pay a high price for this neglect: a consistent failure/drop-out rate of around 50% on the secondary level (Note: in big cities, the actual drop-out rate is occasionally even exceeding this percentage; in rural areas and smaller communities, where dropping out is not so easy, youngsters simply sit through the years, without benefiting or achieving what high school is meant to offer), and a high rate (the highest in the industrial world) of unemployable youth.
Even if we started an effective system of industrial education like the "dual system" of Germany and other European countries, next year, we would not see the results before 1999! In the meantime, industry is in desperate search for skilled and experienced workers that not only can handle the tasks of production with responsibility and positive attitudes, but also would be capable of learning the newly required skills of a "post-industrial" and "high-tech" society. Such a new start would also fail because of the missing foundations on the elementary level! Although there have been numerous reports and research efforts to explain and remedy the still declining academic achievement of American youth (both in public and private schools), no one seems to get at the roots of the problem: the behavioristic ideology which has determined

America's schools for almost 5 decades. Hardly any heresy has had such devastating results in the history of education. It seems that we still have not recognized this sufficiently, what the emphasis on "conditioning" did to two generations of students in this country. The rejection of all proven principles of learning, of the human will, and the dogma that all learning is only "conditioning" is diametrically opposite to the capacity of the human mind to "theorize". Too many of our youth have lost this capacity and will thus not do anything without prior "stimulation" and the promise of "positive rewards". Where will a post-industrial society get the manpower that can handle theoretical knowledge? It is a dangerous fallacy to assume that it will be sufficient to learn how to operate a computer, and to pick up the skills in a training program that has been devised by specialists of "operant conditioning". The warnings of a Georg Kerschensteiner (The Industrial School , 1912) come to mind: this German educator predicted the coming trend of industrialization that moved the emphasis from manual skills to intellectual skills and attitudes. While the Europeans and Japanese picked up these ideas, the American educators even believed that such attitudes as punctuality and accuracy were detrimental to the child's "tender soul". Ask any manager of an American enterprise today what the problems with his employees are, and you will see that it is not primarily the lack of skills, although this is also a problem, but the lack of positive attitudes toward work. The behaviorists offered their help too with programs that were meant to "condition" workers for positive attitudes. Most of these seminars were successful, although the question arises how long the success lasted. The

"traditional way" to develop attitudes during childhood and youth on the basis of activities (Dewey: "we learn by doing...") is much more consistent with our insights in the nature of learning and of the learner. It is also linked with the child's ability to "theorize", to integrate an attitude in a general goal and set of values, and is therefore much deeper-rooted than a conditioning pattern. High-tech industry of any sort requires a consistent repertoire of attitudes like accuracy, punctuality, responsibility, and reliability. There is too much at risk, to allow irresponsible and unstable workers to handle the machinery and processes that can do devastating damage. The recent accidents at our nuclear plants, at the chemical factory in India, etc. should suffice as illustrations of what is at stake.

Only one who can "transcend" the immediate environment and think of the implications of a "lousy job" in the context of others who may be affected by it, can be entrusted with such dangerous yet important and necessary activities as flying an airplane with 400 people on board, or controlling a nuclear power plant. Both can be boring and require minimal skills as long as the machines do the major part, but absent-mindedness of the operator would be catastrophic.

As Theodore Roszak pointed out, about ten years ago, the problem of work which is not commensurate to Man's capacity will be increasingly with us:

> "...the world we live in, the high industrial world we presume to hold up as standard of 'development' is immensely committed to proliferating work that is wrong and wasteful ...unworthy of our best energies!" *

With work moving more into the abstract realm, involving less of human abilities, the problem of such activities "unworthy our energies" will rather increase. One attempt to counter-act this fragmentation which began already when the assembly line threatened Man to be reduced to a cog-wheel in a machinery, and which still more will threaten now, is the development of "industrial democracy", the integration of the worker in the decision-making process of industry. At about the time when Roszak spoke of "wrong and wasteful work", Ted Mills, who was then Director of the National Quality of Work Center in Washington, published an interesting analysis of the European "industrial democracy" movement**. It was probably the first time that an American took any notice of this movement which had started in Europe sporadically already during the last century, but gained momentum after World War II: the active participation of the workers (and employees) in the decision-making process of industry. Several European nations have created a legal basis for this participatory role, making it independent of the "bargaining process", since it is essentially a "human right".

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*) Theodore Roszak, Person/Planet (New York: Doubleday, 1977); Chapter "Work: The Right To Tight Livelihood" in : Annual Editions: Sociology 1985/86, (Guilford CT: Dushkin Publishing Co, 1985), p. 103.

**) Ted Mills, "Leadership from Abroad: European Developments in Industrial Democracy", in W.J. Heisler & J.W. Houck, edsl, A Matter of Dignity, (Notre Dame Press, 1977)

The concept of work as a human activity which requires thought and responsibility involves also the right and the duty to participate in the process of production beyond the mere labor function. In other words, Man is capable of more than doing the labor part of the human act. That can be substituted and done more efficiently by a machine or robot in many instances. But to see the context, the goal, and the whole (cf. "theoria" = the ability to see the whole), and to transcend the narrow range of the work place environment is the human dimension of work. Again, we see the centrality of "theory", of which we spoke about. It is almost ironic that the leading democratic nation should not have been a pioneer in this development of industrial democracy, but countries that have far less "experience" with democratic governments, such as Germany (last century, already!). To be precise, there were mainly American thinkers among those who provided the ideas and conceptual framework for this development: F. Herzberg, Abraham Maslow, and others, but their ideas were studied much more carefully and applied abroad than they were at home. The coming of the "post-industrial era" is at the same time the integration of industry in the global context of international markets and political relations. The exchange of goods shifts to the exchange of ideas and of experience. Dewey believed in this development and saw that it would come, once we take democracy and Man serious:

> "The foundation of democracy is faith in the capacities of human nature, faith in human intelligence, and in the power of pooled and cooperative experience. It is not (the) belief that these things are complete, but...that they will grow, and be able to generate progressively the knowledge and wisdom needed to guide collective action..." (Democracy and Education).

4. Conclusion

There are many possible conclusions one can or should draw from these observations. But we have neither the time nor the intention to discuss them here. It is a matter of decision on the side of the professional educator or whatever discipline may be represented, to respond to these problems and apply his/her expertise. It is true, the problems are too complex to be solved by any one of us, or even by all of us together. But we can bring by the conditions which would be conducive to a solution, and we could prepare the ground for changes by initiating action and thought. Our task as educators and scholars is primarily to initiate thought, to give impulses for re-thinking to those who deal directly with people, particularly with youth.

It would be the foremost task of all of us to make more of our leaders aware of the trends of time and the givens of human nature. The insights from scientific research, from centuries of experience and thought, and the achievements of all the disciplines involved in society and industry still wait to be translated into praxis. We can no longer afford to remain in the sacred halls of Academia, we have to disseminate and actualize our knowledge. The vehicles for dissemination and realization are now available as never before, in a time of information and communication. But we will have to do this in the sense Dewey mentioned: by "pooling experience". At no time in history could one single agency do the job of education. Even in so-called "primitive" societies, the introduction of the young into the existing world was handled not by the parents alone, but by the whole tribe and by specialists such as the "medicine man" or the elders. In a complex society

like ours, whether industrial or post-industrial, there are many agents that cooperate in this task to educate the new generation: the parents as primary agents, but also the community, the Church, the political (State) agencies, industry, business, etc. Whenever one of these agents claimed exclusive authority, the quality of education and the young people suffered. It is one of the problems of our American education system that in many cases, the parents have to carry the burden alone, or the school claims to do the job "better" without the parents, or the government tries to keep the Church, or business out of the schools, or industry tries to do it alone...There is no way to do this job alone! St. Gregory of Nazianzus, one of the four Great Fathers of the Eastern Christian Church (c. 389 AD) wrote about education as "the most complicated task of all tasks, since it deals with the most complicated being". We should not need any discussion about the necessity of a complex effort, a "concerted action" and a cooperative spirit to do this task.

A first and decisive step in this direction would be the establishment of local and statewide councils of education with members of all agencies involved in education: parents (not parents organizations!), teachers, industrial and business leaders, ministers of the church and representatives of all professions that deal with Man (medicine, psychology, sociology, etc.) but without politicians. The State should not have <u>any</u> authority over education except the responsibility for providing the funds for schools and educational programs that meet professional standards (not bureaucratic guidelines influenced by interest groups and controlled by politicians). These standards are to be

established by the Councils, and the programs should be established by any agency that can provide the personnel and facilities meeting these standards. Whether such a program be run by a community or by a Church, by industry or by a group of private citizens should not be a decisive criterion for funding. As long as a "school" or educational institution does the job which contemporary society needs, it should be funded from taxes. Money should not be a decisive factor in an individual's or his (her) parents' decision on the type of education he (she) will receive.

For many of you, this may sound too utopian and even impossible. But the model has been set, and it has been functioning quite well in several European nations (France, West Germany, Switzerland, etc.). All of these nations have provided the constitutional basis for such a partnership structure that involves virtually all agents of society (including the State), and still adheres to the "separation of Church and State" (we ought to call this more accurately "neutrality" between Church and State). It includes tax funding of <u>all</u> schools.

In a time where we have to compete with other nations with our industry, conventional or high-tech, with knowledge and philosophical views, and in an era where theory takes primacy over pragmatism, we can no longer afford to waste time, money -- and particulary people. Thousands of un-employable young people who waste their minds because they did not have an opportunity (for whatever reason) to develop the skills and attitudes needed in an industrial and post-industrial society are the worst waste we allow at this time, in America.

Everything, even "unorthodox" things should be tried to avoid this waste! But this again would require the ability to "theorize", to transcend....

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